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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/711,524	09/23/2004	Peter T. Wu	24.0920	5523

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SCHLUMBERGER OILFIELD SERVICES
200 GILLINGHAM LANE
MD 200-9
SUGAR LAND, TX 77478

EXAMINER	
HUGHES, SCOTT A	
ART UNIT	**PAPER NUMBER**
3663	

DATE MAILED: 07/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/711,524	WU ET AL.	
	Examiner	Art Unit	
	Scott A. Hughes	3663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12/19/2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22 and 31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22 and 31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *1/11/2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claims 1-22 and 31 have been considered but are moot in view of the new ground(s) of rejection.

Election/Restrictions

Applicant's election of Group I, claims 1-22 and 31, in the reply filed on 4/10/2006 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, and because applicant cancelled the non-elected claims, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Information Disclosure Statement

The information disclosure statement filed 9/23/2004 contains a reference that is not considered by the examiner. Patent number 6594651 listed on the IDS as being patented to Kimball, et al, is actually a patent to Kabra, et al titled "Method and Apparatus for Parallel Execution of SQL-From Within User Defined Functions." Therefore, this reference is not considered by the examiner. If applicant would like the reference by Kimball to be included in the known prior art of this application, a new IDS with a correct patent number for the Kimball reference must be submitted. (Examiner believes the Kimball reference was supposed to be numbered 4594691. This reference by Kimball has been cited in the Notice of References Cited). Applicant is advised that the date of any re-submission of any item of information contained in this information

disclosure statement or the submission of any missing element(s) will be the date of submission for purposes of determining compliance with the requirements based on the time of filing the statement, including all certification requirements for statements under 37 CFR 1.97(e). See MPEP § 609.05(a).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-5 are rejected under 35 U.S.C. 102(e) as being anticipated by Mandal (6748329).

With regard to claim 1, Mandal discloses a method for compression of sonic log data. Mandal discloses sorting peak components in a STC plane to transform high-frequency information in the peak components to low frequency. Mandal discloses Mandal discloses decimating the sorted peak components according to a selected ratio to produce compressed data (Figs. 1a,b, 2, 6, 7) (abstract; Column 1, Line 40 to Column 2, Line 65; Column 3, Line 64 to Column 5, Line 25; Column 5, Line 34 to Column 6, Line 39). Mandal discloses sorting the peak components in the STC plane to determine the separations between the peaks. Mandal discloses performing an

operation that removes the high frequency effects on the semblance plot, and therefore on the peaks. This is a transformation of high frequency information to low frequency since the high frequency content is removed. The peak components are decimated by this amount of smoothing, which is a selected ratio since the user determines the operations.

With regard to claims 2-3, Mandal discloses that sorting the peak components comprises sorting for compressive wave, shear wave, and Stoneley wave components in sequential order (Column 1, Line 21 to Column 2, Line 15).

With regard to claim 4, Mandal discloses that sorting involved rules based on expected slowness ranges for the peak components (Column 4, Line 20 to Column 5, Line 26).

With regard to claim 5, Mandal discloses that sorting the peak components comprises correcting peak spikes due to noise in the sonic log data (Column 4, Line 60 to Column 5, Line 5).

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 4, 13, 16, and 31 are rejected under 35 U.S.C. 102(b) as being anticipated by Kimball (5999484).

With regard to claim 1, Kimball discloses a method for compression of sonic log data. Kimball discloses sorting peak components in a STC plane to transform high-frequency information in the peak components to low frequency. Kimball discloses decimating the sorted peak components according to a selected ratio to produce compressed data (Column 6, Lines 10-59).

With regard to claim 4, Kimball discloses that the sorting involves rules based on expected slowness ranges for the peak components (Column 6, Lines 10-36).

With regard to claim 13, Kimball discloses Kimball discloses a method for telemetry transmission of downhole sonic log data. Kimball discloses sorting peak components in a STC plane to transform high-frequency information in the peak components to low frequency. Kimball discloses compressing the sorted peak components for telemetry transmission (Fig. 1) (Column 2, Line 35 to Column 3, Line 30; Column 6, Lines 10-59).

With regard to claim 16, Kimball discloses that the sorting involves rules based on expected slowness ranges for the peak components (Column 6, Lines 10-36).

With regard to claim 31, Kimball discloses providing a processor and memory means, storing a program having instructions in the memory, wherein the instructions comprise sorting peak components in the STC plane to transform high-frequency information in the peak components to low frequency, and decimating the sorted peak components according to a selected ratio to produce decimated data (Fig. 1) (Column 2, Line 35 to Column 3, Line 30; Column 6, Lines 10-59).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-22 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shenoy in view of Mandal (6748329).

Claims 1 are rejected under 35 U.S.C. 102(b) as being anticipated by Shenoy.

With regard to claim 1, Shenoy discloses a method for compression of sonic log data. Shenoy discloses sorting peak components in sonic log data. Shenoy discloses filtering the sorted peak components to remove high-frequency portions in the peak components. Shenoy discloses decimating the filtered peak components according to a selected ratio to produce compressed data (abstract; Column 3, Lines 5-60; Column 4, Line 39 to Column 6, Column 8, Columns 9-12). Shenoy discloses that the filtering is performed on the data before it is placed into the STC plane and semblance peaks are found in this STC plane. Mandal teaches that the downhole data used in STC processing can be frequency filtered and the high frequency components removed after the data has been processed in the STC plane and peaks found in the STC plane ((abstract; Column 1, Line 40 to Column 2, Line 65; Column 3, Line 64 to Column 5, Line 25; Column 5, Line 34 to Column 6, Line 39). It would have been obvious to modify Shenoy to perform the filtering of the data after it has been processed in the STC plane as taught by Mandal instead of before the data is processed in the STC plane in

order to filter the frequencies to get the useful frequencies of the peaks in the STC plane which are used to determine slowness and other factors in the formation surrounding the borehole. Using a low-pass filter on the data after it has been processed in the STC plane would remove the same unwanted frequencies from the final data sent uphole as would low-pass filtering the initial waveforms.

With regard to claims 2-3, Shenoy discloses that sorting the peak components comprises sorting for compressive wave, shear wave, and Stoneley wave components in sequential order (Figs. 7a,b) (Column 2., Columns 5-6, 9-10). Shenoy discloses sorting the peaks by time and by frequency. Therefore, the sorting would be done sequentially as the peaks for P-wave, S-wave, and St-wave would come in sequential order by frequency or time.

With regard to claim 4, Shenoy discloses that sorting involved rules based on expected slowness ranges for the peak components (Column 3, Line 50 to Column 4, Line 5., Column 5, Line 20 to Column 6, Line 62; Column 8., Columns 9-12).

With regard to claim 5, Shenoy discloses that sorting the peak components comprises correcting peak spikes due to noise in the sonic log data (Column 11, Line 54 to Column 12, Line 2).

With regard to claim 6, Shenoy discloses that filtering uses a low pass filter (Columns 6-8).

With regard to claim 7, Shenoy discloses that the low pass filter is selected to cut off a top 75% frequency in the sorted peak components (Column 5, Lines 48-65; Columns 6-8). Shenoy discloses that the low pass filters is a narrow-band filter. From

the disclosure, it is understood that this narrowband low pass filter would be selected to remove the top 75% of the frequency.

With regard to claim 8, Shenoy discloses that the selected ratio is four to one (Column 5, Line 48 to Column 6, Line 30). Shenoy discloses a decimator that is an integer M. He further discloses one example where the ratio is five to one. Therefore, it would be assumed that one of the integers used would be a ratio of 4 to one.

With regard to claim 9, Shenoy discloses that the sorting, the filtering, and the decimating are performed in a downhole tool (abstract; Column 3, Lines 1-28; Column 4, Line 39).

With regard to claim 10, Shenoy discloses sending the compressed data uphole via telemetry (abstract).

With regard to claim 11, Shenoy discloses that sending the compressed data uphole comprises encoding the compressed data (Column 6, Line 62 to Column 7, Line 6; Column 11, Lines 45-55).

With regard to claim 12, Shenoy discloses that the telemetry comprises mud pulse telemetry (Column 11, Lines 45-55).

With regard to claim 13, Shenoy discloses a method for telemetry transmission of sonic log data. Shenoy discloses sorting peak components in sonic log data. Shenoy discloses compressing the sorted peak components to produce compressed data. Shenoy discloses packing the compressed data to produce data packets for telemetry transmission and sending the data packets where desired using telemetry (abstract; Column 3, Lines 5-60; Column 4, Lines 39 to 68; Columns 5-6; Column 8; Columns 9-

12). Shenoy discloses that the filtering is performed on the data before it is placed into the STC plane and semblance peaks are found in this STC plane. Mandal teaches that the downhole data used in STC processing can be frequency filtered and the high frequency components removed after the data has been processed in the STC plane and peaks found in the STC plane ((abstract; Column 1, Line 40 to Column 2, Line 65; Column 3, Line 64 to Column 5, Line 25; Column 5, Line 34 to Column 6, Line 39). It would have been obvious to modify Shenoy to perform the filtering of the data after it has been processed in the STC plane as taught by Mandal instead of before the data is processed in the STC plane in order to filter the frequencies to get the useful frequencies of the peaks in the STC plane which are used to determine slowness and other factors in the formation surrounding the borehole. Using a low-pass filter on the data after it has been processed in the STC plane would remove the same unwanted frequencies from the final data sent uphole as would low-pass filtering the initial waveforms.

With regard to claims 14-15, Shenoy discloses that sorting the peak components comprises sorting for compressive wave, shear wave, and Stoneley wave components in sequential order (Figs. 7a,b) (Column 2; Columns 5-6, 9-10). Shenoy discloses sorting the peaks by time and by frequency. Therefore, the sorting would be done sequentially as the peaks for P-wave, S-wave, and St-wave would come in sequential order by frequency or time. Mandal discloses that sorting the peak components comprises sorting for compressive wave, shear wave, and Stoneley wave components in sequential order (Column 1, Line 21 to Column 2, Line 15).

With regard to claim 16, Shenoy discloses that sorting involved rules based on expected slowness ranges for the peak components (Column 3, Line 50 to Column 4, Line 5; Column 5, Line 20 to Column 6, Line 62; Column 8; Columns 9-12).

With regard to claim 17, Shenoy discloses that sorting the peak components comprises correcting peak spikes due to noise in the sonic log data (Column 11, Line 54 to Column 12, Line 2).

With regard to claim 18, Shenoy discloses that compressing comprises filtering the sorted peak components using a low pass filter and decimating the filtered sorted peak components according to a selected ratio (Columns 6-8).

With regard to claim 19, Shenoy discloses that the low pass filter is selected to cut off a top 75% frequency in the sorted peak components (Column 5, Lines 48-65; Columns 6-8). Shenoy discloses that the low pass filters is a narrow-band filter. From the disclosure, it is understood that this narrowband low pass filter would be selected to remove the top 75% of the frequency.

With regard to claim 20, Shenoy discloses that the selected ratio is four to one (Column 5, Line 48 to Column 6, Line 30). Shenoy discloses a decimator that is an integer M. He further discloses one example where the ratio is five to one. Therefore, it would be assumed that one of the integers used would be a ratio of 4 to one.

With regard to claim 21, Shenoy discloses unpacking the data packets to regenerate the compressed data. Shenoy discloses decompressing the regenerated compressed data to reconstruct the peak components (Fig. 2) (abstract; Columns 3, 7).

With regard to claim 22, Shenoy discloses that decompressing comprises interpolating the regenerated compressed data (Column 5, Lines 20-47; Column 6, Column 8, Lines 45-65).

With regard to claim 31, Shenoy discloses providing a processor and memory means. Shenoy discloses storing a program having instructions in the memory, wherein the instructions comprise sorting peak components to transform high frequency information in the peak components to low frequency, and decimating the sorted components according to a selected ratio to produce compressed data (Column 4, Lines 39-68; abstract; Column 3, Lines 5-60; Column 4, Lines 39 to 68; Columns 5-6; Column 8; Columns 9-12). Shenoy discloses that the filtering is performed on the data before it is placed into the STC plane and semblance peaks are found in this STC plane. Mandal teaches that the downhole data used in STC processing can be frequency filtered and the high frequency components removed after the data has been processed in the STC plane and peaks found in the STC plane ((abstract; Column 1, Line 40 to Column 2, Line 65; Column 3, Line 64 to Column 5, Line 25; Column 5, Line 34 to Column 6, Line 39). It would have been obvious to modify Shenoy to perform the filtering of the data after it has been processed in the STC plane as taught by Mandal instead of before the data is processed in the STC plane in order to filter the frequencies to get the useful frequencies of the peaks in the STC plane which are used to determine slowness and other factors in the formation surrounding the borehole. Using a low-pass filter on the data after it has been processed in the STC plane would

remove the same unwanted frequencies from the final data sent uphole as would low-pass filtering the initial waveforms.

Conclusion

The cited prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott A. Hughes whose telephone number is 571-272-6983. The examiner can normally be reached on M-F 9:00am to 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on (571) 272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SAH

JACK KEITH
SUPERVISORY PATENT EXAMINER